used for workflow routes that span multiple knowledge domains (separate sites in the examples) where no single person understands the entire process. Figure 5 illustrates the groups of individuals who use the workflow:
Group 51 are global account managers who determine the set of sites at which work is to be performed by selecting from the sties Y1, Y2, Y3 at node X of the route.
Group 52 represents two subgroups at a site: 1) production workers who are directed by the workflow and 2) Site key users who understand the site process and define a sub-route for the site process.
Groups 53 and 54 are similar groups at other sites.
The global account managers who execute the adaptive workflow step X are not workflow experts or programmers. These people can barely use e-mail or Excel. eFlow provides significant run-time route adaptation (programming) capabilities but require skills well beyond those of global account managers; use of generic service node/process service discovery, composite services and service selection rules, etc. for global account managers to adapt a route to assign work to a set of sites is well beyond their skill level and job assignment. Selection of sites from a list of possible sites as illustrated as 46 in Figure 4 is the level of skill suited for global account managers and the vast majority of users of the workflow system. The global account managers create hundreds of routes per day. The eFlow route adaptation is too complex for their skill level and too time consuming. Also, rules based route adaptation of eFlow is not possible since the reasons for selecting sites and lines depend on too many external conditions, customer choice of site as one example. The process for the site key users who define the sub-routes must be easy too. The present invention is for use by mortal users.

2) An a priori route with all of the possible sub-routes could be constructed by linking the sub-routes and providing prior art multi-way branches at the selection nodes. This would work for simple routes and a small number of sites. However, the present invention is used in an environment of over 50 sites and over 500 manufacturing lines where the sites may be selected individually or in sets with

parallel execution of the work at multiple sites. Sub-routes include selection nodes where site account managers assign work to manufacturing lines within a site. A single a priori route with combinations of 50 sites and 500 lines are too large to build and maintain. Envision the route 413 in Figure 4 with 50 nodes branching from node X and for each Y node, 10 site level branches, for a total of 500 potential sub-routes. The user combinations illustrated in each list for each node would be in the thousands and impossible to define in an a priori route. Recall that no one person knows the entire process and the composite route would require a large number of people to keep their portion up dated. In addition, each instance of an a priori complied route of the entire process uses significant system resources while the dynamically constructed route requires only the sub-routes for that instance and the sub-routes are activated when selected which may be well after the start of the route. Also, the site key users change the sub-route for the site or line and these changes are reflected at the time of selection during execution not at the time of building the route.

The inventor acknowledges that sub-route linking for compiling routes BEFORE route execution is prior art but not the present invention that provides a route step for selection and dynamic inclusion of a sub-route during the execution of a route.

The user assignment screen 48 in Figure 4 illustrates dynamic route alteration by selecting the user of a route step from a list of potential users 49. The composite route 413 illustrates that the lists of potential users are tailored based on sub-route, site, and route step.

The inventor acknowledges that selecting a route step user from a list of potential route step users BEFORE route execution is prior art but not the present invention that provides for a route step for selecting a user for a subsequent route step during the execution of the route.

3) One of ordinary skill, given Figures 4 and 5 and the specification, could develop a program to implement the present invention including the selectable list of sub-routes and dynamic creation of routes. These description documents are as detailed as high level design specifications provided a program

development team of ordinary skill. The current implementation of the invention was based on these documents. Routes and sub-routes are frequently implemented as double linked lists in a relational database route table where a route step is represented in a table row, including the links, workflow step function, route ID, and user. A second table provides rows that cross-reference a selectable sub-route and route ID to a site or label and an optional selection criteria field. A third table provides rows with the current location of a workflow in its corresponding route. The sub-route selection screen 46 in Figure 4 provides a screen that presents the list from the second table for the user to select a site or label. For each selection by the user of screen 46, the code for the screen copies the selected sub-route in the route table, connects the links of the copied sub-route to the active route, also in the route table, and adds a row to the third table that starts the copied sub-route. The selection criteria disclosed in [0028] describes tailoring the selection list based on site and level of the organization using the selection field in the second table.
One of ordinary skill may have to experiment as to how to best fit the design into an existing workflow program but not to implement the present invention.

In summary, the present invention is different from eFlow and the prior art, performs a useful function, and the level of detail in the specification and figures is sufficient for implementation by one of ordinary skill.

The claims have been rewritten for clarity rather than adding and deleting to existing text. Cancel claims 1-59. New claims are grouped as 60-67, 68-73, and 74-79 where claims 60, 68, and 74 are independent claims.

Respectfully submitted

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